UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
WRIGHT, BRYAN F

ART UNIT	PAPER NUMBER
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NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*18 June 2009*</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

FINAL ACTION

1.   This action is in response to Amendment filed 6/18/2009. Claims 1, 8, and 11

are amended. Claim 22 is new. Claims 1-22 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 8 -11, 17, and 19-22 are rejected under 35 U.S.C. 102(b) as being

anticipated by Carapelli (US Patent No. 6,119,110).

3.   As to claim 8, Carapelli teaches a method for monitoring an electronic instrument

for metrological measurements, comprising: receiving (e.g., loaded)information (e.g.,

keys) associated with a handling application (e.g., microprocessor firmware) for the

instrument and locally stored [col. 3, lines 55-60],

the handling operation (i.e., firmware/software) operable to control the

instrument (i.e., ...teaches software in the head of the measuring device [col. 1, lines

40-50]. ... the software controlling the measuring device),

issuing a certification code associated with the handling application (e.g.,

microprocessor firmware) based on the information and operable to indicate that

integrity of the handling application (e.g., microprocessor firmware) has been

maintained [col. 4, lines 15-35].

4.   As to claim 9, Carapelli teaches a method where producing a code includes

processing said information using a cryptography algorithm (e.g., DES encryption [col.

3, lines 30-35]).

5.   As to claim 10, Carapelli teaches a method where tile received information

comprises an authenticity certificate (e.g., private key) of the handling application (col.

4, lines 15-25).

6.   As to claim 11, Carapelli teaches a method according where tile received

information comprises an acknowledgement code (e.g., input code) of said instrument

(col. 4, lines 25-32).

7.   As to claim 17, Carapelli teaches a method further comprising: determining a

violation (e.g., tampered) of the integrity of the handling application [col. 4, lines 29-32];

and generating an alert in response to the violation [col. 4, lines 20-35].

8.   As to claim 19, Carapelli teaches a method further comprising: determining that a

certification associated with the handling application (e.g., firmware) is invalid [col. 4,

line 15- 25];

and generating an alert in response to the determining the invalidity [col. 4, lines 20-35].

9.   As to claim 20, Carapelli teaches a method further comprising generating a stamp (e.g., code) indicating that the integrity of the handling application (e.g., firmware) is verified (col. 4, lines 25-32).

10.   As to claim 21, Carapelli teaches a method where the information is received at the start of the handling application (e.g., firmware) [fig. 2].

11.   As to claim 22, Carapelli teaches a method where the cryptography algorithm comprises one of a Secure Hash Algorithm (SHA) hashing algorithm or an RSA hashing algorithm (i.e., …teaches a non-reversible cryptographic process in [col 3, lines 30-35]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12.   Claims 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carapelli in view of Finely et al. (US Patent No. 6,442,448 and Finely hereinafter).

13.   As to claim 18, the system disclosed by Carapelli shows substantial features of

the claimed invention (discussed in the paragraph above), it fails to disclose: A method

further comprising preventing the handling application from operating in response to

determining the violation.

However, these features are well known in the art and would have been an obvious

modification of the system disclosed by Carapelli as introduced by Finley. Finley

discloses:

A method further comprising preventing (e.g., not allowing the operating system

to boot) the handling application from operating in response to determining the violation

(to provide means to prevent further operation of tampered detected firmware [col. 20,

lines 20-27]).

Therefore, given the teachings of Finley, a person having ordinary skill in the art at the

time of the invention would have recognized the desirability and advantage of modifying

Carapelli by employing the well known features of certification for certifying software

code on a measuring instrument disclosed above by Finley, for which user measuring

device software authentication will be enhanced [col. 4, lines 15-35]).

14.   Claims 1, 3-7, and 12-16 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Finley in view of Carapelli.

15.   As to claim 1, Finley teaches a control system of an electronic instrument for

metrological measurements, comprising:

a handling application operable to control the instrument [col. 7, lines 59-67; col.

8, lines 1-25];

and a control application operable to verify integrity of said handling application

(i.e., ... teaches an approved stamp version for verifying software application

certification [col. 23, lines 55-65]).

Finley does not expressly teach the claim limitation element of:

said control application operable to generate a certification code the handling

application in response to verifying that the integrity of the handling application is

maintained.

However, these features are well known in the art and would have been an obvious

modification of the system disclosed by Finley as introduced by Carapelli. Carapelli

discloses:

said control application operable to generate a certification code (e.g., visual

indication of non-tampered software) the handling application in response to verifying

that the integrity of the handling application (e.g., software) is maintained (to provide

visual indication of software tampering [col. 4, lines 28-31]).

Therefore, given Finley ability maintain software version information and detect software

tampering, a person having ordinary skill in the art at the time of the invention would

have recognized the desirability and advantage to of modifying Finley to provide visual

evidence that the software was not tampered with by employing the well known feature

visually indicating if a particular piece of software has been tampered with as disclosed

by Carapelli.

16.   As to claim 3, Finley teaches control system where said control application and

said handling application are communicably coupled via a network [fig. 14].

17.   As to claim 4, Finley teaches a control system characterized in that it includes a

dynamic library associated with said handling application, which, at the start of a

handling application, activates said control application (col. 6, lines 40-50).

18.   As to claim 5, Finley teaches a control system where said dynamic library is

locally stored (col. 10, lines 10-20).

19.   As to claim 6, Finley teaches a control system where said dynamic library is

situated in said central processing unit (col. 7, lines 50-55).

20.   As to claim 7, Finley teaches a control system where said univocal (i.e., having

only one possible value) code is obtained using a cryptography algorithm (col. 23, lines

59-62).

21.   As to claim 12, Finley teaches a system where the controller is further operable

to generate an alert in response to determining a violation of the integrity of the handling

application [col. 24, lines 45-55].

22.   As to claim 13, Finley teaches a system where the violation comprises an

unregistered modification of the handling application (i.e., .. teaches an error in which

the system has been tampered with [col. 20, lines 20-30]).

23.   As to claim 14, Finley teaches a system where the controller is further operable

to prevent the handling application from operating in response to determining the

violation [col. 15, lines 40-50].

24.   As to claim 15, Finley teaches a system where the controller is further operable

to verify whether a certification associated with the handling application (e.g., firmware)

is valid (col. 4, lines 15-25).

25.   As to claim 16, Finley teaches a system where the certification is verified using a
digital signature [col. 20, lines 15-30].

26.   Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Finely in
view of Carapelli as applied to claim 1 above, and further in view of Johnson (US Patent
No. 6904592).

27.   As to claim 2, the system disclosed by the combination of Finley in view of
Carapelli shows substantial features of the claimed invention (discussed in the
paragraph above), it fails to disclose:

        A control system where said code is associated with a stamp comprising an
issuing date of said stamp a reference code of the metrological measurement
instrument, and a barcode corresponding to said code.

However, these features are well known in the art and would have been an obvious
modification of the system disclosed by the combination of Finley and Carapelli as
introduced by Johnson. Johhson discloses:

        A control system where said code is associated with a stamp comprising an
issuing date of said stamp a reference code of the metrological measurement
instrument, and a barcode (e.g., record) corresponding to said code (to provide a record
of software maintenance [372, 374, fig. 5]).

Therefore, given the teachings of Johnson, a person having ordinary skill in the art at the time of the invention would have recognized the desirability and advantage of modifying the combination of Finley and Carapelli by employing the well known features of a software down record disclosed above by Johnson, for which user measuring device software maintenance will be enhanced [col. 4, lines 15-35]).

Response to Arguments

Applicant's Remarks 102(b) – Carapelli - Claims 8-11, 17, and 19-21

With regards to applicant's remarks of, "Applicants respectfully traverse this rejection, because Carapelli fails to teach or suggest each and every feature of, for example, amended claim 8, As one example of the deficiencies in Carapelli, amended claim 8 includes the step of "issuing a certification code associated with the handling application based on the information and operable to indicate that integrity of the handling application has been maintained." The Office Action alleges that Carapelli teaches this feature through its disclosure of an "identity code" for the microprocessor of the electronic head (C). See Office Action at 2 (citing Carapelli at 4:15-35). But in contrast to amended claim 8, which is directed to ensuring the integrity of a handling application executing on (and controlling) an electronic instrument for metrological measurements, Carapelli teaches two techniques for guaranteeing that measured values from a measuring instrument (i.e., a fuel dispenser pulser) are accurate that neither involve nor implicate any alleged handling application.

For clarity purposes the Examiner cites applicant's original disclosure paragraphs 42 and 43, for which reads, "handling application of the measurement instrument preferably comprises an authenticity certification, which is provided by the application author. This certification includes a digital signature which is implemented, for example, by means of an RSA cryptography protocol.

[0043] This digital signature, through a mechanism of public and private keys, guarantees the authenticity of the handling application with which said key is associated.

The Examiner respectfully submits that Carapelli discloses an "identity code" associated with a piece of firmware installed on a measuring device. The "identity code" is used as a validation "signature" for the firmware. Those skilled in the art would recognize applicant's "handling application" as being merely firmware executing on a device processor. Additionally, Carapelli discloses the ability to visually indicate firmware tampering in the same column.

With regards to applicant's remarks of, "...But Carapelli's teachings are clear that the purpose of this identity code is to "verify whether or not the present electronic [sic, head] is the original one. Carapelli at 4:20-21. Put simply, Carapelli teaches that its second technique for guaranteeing measured values from its measuring device is to check whether the original electronic head (C) has been wholly replaced and not whether the integrity of a handling application (to the extent Carapelli even discloses such an application) has been maintained", the Examiner respectfully submits that applicant's remarks are not factually true. The Examiner submits Carapelii column 4, lines 15-25 reads, " ...an identity code for the installed chip and firmware. This code can be associated to the private key of the device to be used as a validation "signature" of authenticity. The code allows the user to verify whether or not the present electronic head is the original one, for example by means of a portable reader

programmed with the encryption software of the system". Carapelli clearly states that

the code can be used as a validation "signature" of authenticity for the firmware (e.g.,

handling application).

Applicant's Remarks 103 – Finley in view of Carapelli - Claims 1, 3-7, and 12-16

With regard to applicant's remarks of, "Applicants respectfully traverse this

rejection because the Finley-Carapelli combination fails to teach or suggest multiple

features of, for example, amended claim 1. Indeed, in accordance with the above

explanation of Carapelli's deficiencies, Applicants respectfully submit that the Finley-

Carapelli combination fails to teach or suggest amended claim 1 's feature of the

generation of "a certification code for the handling application in response to verifying

that the integrity of the handling application is maintained." Thus, Applicants respectfully

submit that amended claim 1 and all claims depending therefrom are allowable over the

Finley-Carapelli combination for at least this reason.

First applicant's alleged deficiency on the part of Carapelli presented above was

non-persuasive in view of Carapelli's teachings in column 4, lines 15-25. Secondly, with

regards to applicant's claim limitation element of "a certification code for the handling

application in response to verifying that the integrity of the handling application is

maintained", the Examiner contends, in view of applicant's disclosure paragraph 52,

applicant's certificate code is design to simply maintain that the correct version of

software (e.g., firmware) is present on the device. With respect to the teachings of

Finley in this matter, Finley address the issue of firmware versioning in a comparable

manner. Finley discloses a process of ensuring all software (e.g., firmware)

components are "what they are supposed to be" (i.e., certificate code). Such a process

includes software version maintainability and indication {col. 15, lines 50-67; col. 16,

lines 1-10]. Also, it is important to note that Carapelli discloses a means to provide

visual indication of software tampering in column 4, lines 28-31.

With regard to applicant's remarks of " Applicants respectfully submit that

Carapelli fails to teach or suggest that this firmware "is operable to control" an electronic

instrument for metrological measurements, such as, for example, its pulser teachings of

Finley fail to indicate that the SM (300) software controls any such metrological

measurement instrument but, rather, indicate that such software controls general

management functionality of a complete fuel dispensing site including multiple fuel

dispensers and point-of- sale devices. In view of the foregoing deficiencies in the

Finley-Carapelli combination with respect to amended claim 1", the Examiner

respectfully submits Carapelli discloses that his invention involves measuring devices

[abstract]. Further, Carapelli discloses that the software on the head of the measuring

device can be modified and that there is a need to find a way to detect tampering of said

software [col. 1, lines 40-50]. Finley discloses ways to detect tampering in a fuel system

environment; the fuel system environment comprising a measuring device with

associated firmware to accurately dispense the fuel [fig. 8].

With regard to applicant's remarks of, "Claim 22 is Allowable Over the References of Record New claim 22 depends from amended claim 8 and requires that the cryptography algorithm comprises one of a Secure Hash Algorithm (SHA) hashing algorithm or an RSA hashing algorithm. Applicants respectfully submit that neither Finley, Carapelli, nor Johnson teaches or suggests this feature of new claim 22", the Examiner contends Carapelli discloses a non-reversible cryptographic process in column 3, lines 30-35.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYAN WRIGHT whose telephone number is (571)270-3826. The examiner can normally be reached on 8:30 am - 5:30 pm Monday -Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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